DOCUMENT RESUME

ED 104 929 TM 004 385

AUTHOR Starkweather, Elizabeth K.
TITLE Starkweather Originality Test for Young Children.
SPONS AGENCY Oklahoma State Univ., Stillwater. Research Foundation.
PUB DATE Nov 74
NOTE 15p.

EDRS PRICE MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS Children; Creative Thinking; *Creativity; *Early Childhood Education; Imagination; *Originality; Pretests; Scoring; *Testing; Test Reliability; *Tests; Test Validity
IDENTIFIERS *Starkweather Originality Test

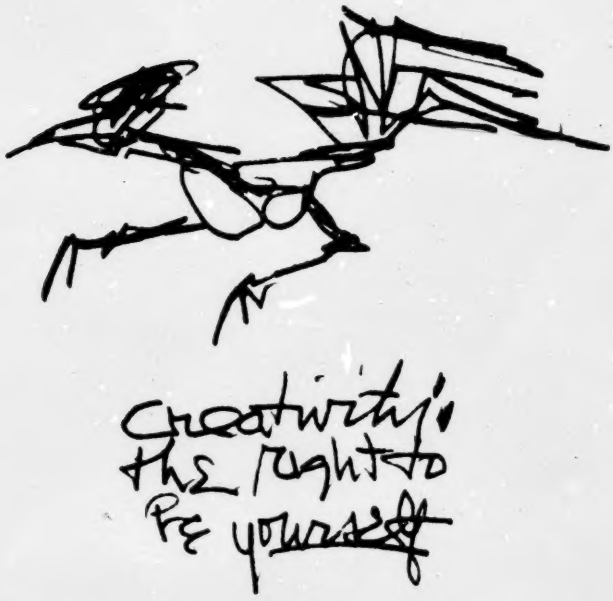
ABSTRACT

The Starkweather Originality Test is designed to measure the creative potential of children ranging in age from 3 years, 6 months to 6 years, 6 months. Children younger than 3 years, 6 months can be given the Originality Test if their ability to communicate verbally is satisfactorily demonstrated during the pretest. The test is individually administered to each child by an adult. Both may sit at a table or on the floor, whatever makes the child feel most comfortable and happy. The test consists of 40 plastic foam pieces, four each of different shapes which are red, blue, green, and yellow. The child is asked to speculate on what a form could represent, and the child must know that any answer is acceptable. Since the Originality Test provides four opportunities for a child to respond to each shape, making a total of 40 responses, his/her score is calculated on the number of different responses given. Credit is given for each response that differs from all previous responses. Test validity is demonstrated through comparison with freedom of expression scores. (Author/BJG)

ED104929

For further information about
the STARKWEATHER ORIGINALITY
TEST contact: DR. E. K. STARKWEATHER
FRCD Dept., O.S.U.
Stillwater, Oklahoma 74074

FEB. 3 1975



STARKWEATHER ORIGINALITY TEST
FOR YOUNG CHILDREN

developed by
Elizabeth K. Starkweather

Oklahoma State University
Stillwater, Oklahoma

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

TM 004 385

STARKWEATHER ORIGINALITY TEST

FOR YOUNG CHILDREN*

developed by
Elizabeth K. Starkweather

Oklahoma State University
Stillwater, Oklahoma

The Starkweather Originality Test is designed to measure the creative potential of young children. In the test, no attempt is made to differentiate the closely related factors of creative ability which have been identified in older children and adults, such as originality, flexibility, fluency, and elaboration. It is possible that all of these factors contribute to a high score on the Originality Test, and it is also possible that strength in one factor alone may be sufficient to produce a high test score.

Recommended Age Range

The Starkweather Originality Test is designed for use with children ranging in age from 3 years 6 months to 6 years 6 months.

Children younger than 3 years 6 months can be given the Originality Test if their ability to communicate verbally is satisfactorily demonstrated during the pretest.

Children older than 6 years 6 months tend to earn higher test scores than do younger children, and as a result, their median score is apt to be near the ceiling of the test. Under such circumstances, the less original children are identified but the more original children are not.

Testing Situation

The Starkweather Originality Test is individually administered. The child being tested must be alone with the adult administering the test. Both may sit at a table or on the floor. The important consideration is that the child be comfortable and happy. In this one-to-one relationship, the child can know and must know that his responses are all accepted and enjoyed. Neither the child nor the adult must feel hurried.

---

*The Starkweather Originality Test was developed as part of a creativity research program supported by the Research Foundation at Oklahoma State University.

(The major difference between intelligence testing and creativity testing is in the type of response expected from the child. In the former, a specific correct response is required; whereas in the latter, there is no correct response and virtually any response made by the child is acceptable.)

The table or the floor area used for testing must be large enough for both the child and the adult to have an open box of test materials and the inverted box lid within easy reach.

The Pretest

The pretest materials consist of eight plastic foam pieces, two each of four shapes. One of each shape is white and the other is pastel. The pieces are in a special box designed for use in the test.

The purpose of the pretest is to determine whether the child has the ability and the freedom to communicate verbally to the extent necessary for taking the Originality Test. The child must give five or more different responses during the pretest. If he does not, the testing does not proceed.

The pretest also serves to show the child that different responses are acceptable and similar responses are acceptable. For example, for two pieces of the same shape, the child may give a different response for each or he may give the same response for each. This must be demonstrated for every child before the Originality Test is administered.

Administration: The pretest box should be open when the child enters the room in order that he immediately see the materials with which he will be playing. The box lid, inverted, should be within easy reach. It serves as a second box into which the child places the pieces as he finishes with them

The adult (E.) tells the child to take one piece, any one that he wants. When he has done so, E. tells him to find another piece like it. Then E. asks to hold one of the pieces.

"You take one. Any one you want."
"All right. Now find another one like it."
"Let me hold one." (Many children give the white pieces to the adult and hold the colored pieces themselves.)

E. asks the child what his piece could be and offers encouragement if he is hesitant. (The child must not be hurried. He must be given plenty of time to respond.)

"What can yours be?" "What does it look like?"
"What would you like it to be?" "Just pretend."
"What do you want it to be?"

(These are examples of the kinds of comments that can be made in in encouraging the child to respond.)

When the child has named his piece, E. asks what the other piece might be. (Throughout the pretest and test proper, as each pair of pieces is presented, E. holds her piece in the same position that the child holds his, and she changes the position of her piece after the child has given one response.)

"All right. Yours is a (tree)." (E. changes the position of the piece she is holding.)
"What can mine be?"

Any answer the child gives is accepted, whether it is different from his first response or the same. Both pieces are then put into the inverted box lid. E. puts hers in, making a comment such as "In they go!" The child usually follows spontaneously with his. If necessary, E. puts both pieces into the box top.

If the child does not respond to his first piece, E. suggests a response.

"Could it be a (tree)?" (Child may agree by nodding or by speaking.)
"All right. It's a good (tree). Now what can mine be?"

If the child does not pick up a piece, E. picks up the rectangular piece and asks what it could be. If the child does not respond, E. suggests an answer.

"What could this be?" "What does it look like?"
"Could it be a window?"
"All right. It's a good window. Now what can mine be?"

Children who do not pick up the first piece and those who do not respond to the first piece are frequently unable to proceed with the test; that is, they do not pass the pretest and the test proper is not administered. Rarely does a child under three years of age pass the pretest.

The pretest continues as above until the child has responded to all eight pieces. (For easy recall, the child's responses should be recorded on the back of the score sheet.) When all the pieces have been named and placed in the inverted box lid, E. moves the pieces one at a time back to the first box, reviewing the child's responses as she does so.

One purpose of the pretest is to show the child that different responses and similar responses are acceptable. This is accomplished as E. reviews the child's responses. Some children give a different response for each piece during the pretest, some children give different responses for some paired pieces and the same response for other paired pieces; and some children give the same response for all paired pieces. Below are examples of the ways of reviewing the child's responses.

Example 1: The child gave a different response for each piece during the pretest.

Slide . . . . . Car
Window . . . . . Swimming pool
Tree . . . . . Ice cream cone
Bed . . . . . "I"

For this child, E. must demonstrate that it is all right to give the same response for two pieces of the same shape, and she must do so without rejecting any of the child's responses. She does this by suggesting that the same response for the last paired pieces would be acceptable, as follows:

"This is a slide . . . and this is a car."
"This is a window . . . and this is a swimming pool."
"This is a tree . . . . and this is an ice cream cone."
"This is a bed . . . . and this is an 'I' -- or it could be another bed, and then we'd have two beds!"

Example 2: The child gave some different responses and some similar responses during the pretest.

Slide . . . . . Car
Window . . . . . Window
Tree . . . . . Tree
"H" . . . . . "I"

For this child, E. is accepting similar and different responses as she moves the pieces and reviews the child's responses.

"This is a slide . . . and this is a car."
"This is a window . . . and this is a window."
"This is a tree . . . . and this is a tree."
"This is an 'H' . . . . and this is an 'I'."

Example 3: The child gave the same response for the two pieces in each pair. This child must be encouraged to give another response or he will have failed the pretest.

Car . . . . . Car
Window . . . . . Window
Tree . . . . . Tree
Bed . . . . . Bed

After the child's last response, E. continues to hold her piece and says, "Yes, it could be a bed, but we already have one bed. Could it be something else?" (E. encourages the child to give an additional response.) "Can you think of something else it could be?" "What else does it look like?"

If the child gives another response, E. reviews his responses, and the test proceeds.
If the child does <u>not</u> give another response, E. accepts his first response and the test does <u>not</u> proceed.

"All right. We have two beds!"

<u>The Originality Test</u>

The Originality Test consists of 40 plastic foam pieces, four each of ten different shapes. The identically shaped pieces are painted in four colors -- red, blue, green, and yellow. The pieces are presented in two boxes, each box containing 20 pieces, two of each shape assorted in color. As for the pretest, the boxes are designed so that the inverted lids serve as additional boxes during the administration of the test.

<u>Administration</u>: In the administration of the test proper, the two boxes of 20 pieces each are used simultaneously. E. inverts one box and places it before the child; and the other box, also inverted, she places before herself. E. then opens her box by lifting the upper part, thus revealing the pile of colored pieces in the inverted box lid. The child does the same with his box. The empty boxes are placed within easy reach; and as the test proceeds, the pieces are transferred one by one from the inverted lids to these boxes.

E. tells the child to take one piece, and then she finds a piece of the same shape in her box.

"You take a piece. Any one that you want."
"All right. Now I will find one like it in my box."

E. holds her piece in the same position that the child holds his. She then comments about the colors and asks what the child's piece might be.

"You have a (red) one and I have a (yellow) one."
"What could yours be?"

When the child responds, E. accepts his response, changes the position of her piece, and asks what hers might be.

"OK. Yours is a (bridge). What can mine be?"

When the child has again responded, E. directs him to put his piece in his empty box, and she puts her piece in her box. This procedure is repeated until the child has responded to all 40 pieces, 20 from his box and 20 from E's box.

During the administration of the test proper, the child's responses are accepted whether or not he gives different responses for the various shapes. Unlike the pretest, the child is not encouraged to give different responses to pieces which are of the same shape.

Occasionally a child will take two or more pieces and construct something with them as he talks. When this happens, he should be encouraged to respond to each piece separately. For example, E. might say, "All right; but what could this piece be all by itself?"

Scoring: The Originality Test provides four opportunities for the child to respond to each shape, making a total of 40 responses. Each child's score is the number of different responses he gives, with the maximum possible score being 40. Responses are scored in the order in which they appear on the score sheet, i.e., the four responses for the first shape, then the four responses for the second shape, etc.

Credit is given for each response that is different from all previous responses. Credit is given for the names of categories and for objects which are in the same category, such as a golf ball and a baseball. Credit is not given for objects which are named a second time and altered by a minor adjective, such as a ball and a little ball. Credit is not given for invented words or a play on words, such as kigless and sigless. Credit is given for "pet" words which have special meaning for the child, and care must be taken to distinguish between these and nonsense words invented by the child during the test. (Detailed scoring directions and sample score sheets are appended.)

Evaluation of the Originality Test

Comparison of Form-A and Form-B: Two forms of the Originality Test (Form-A and Form-B) have been developed, and the comparability of the two forms has been demonstrated in test-retest research with 76 children. For half of these children, Form-A was administered first, and for the other half, Form-B was first. The children in the two groups were matched on initial test scores in order that the comparability of the two forms of the test not be distorted by differences that might exist among the children. The test-retest research included statistical analyses of the following data: retest scores, changes in scores from test to retest, and responses given to individual test items.

If the two forms of the Originality Test are comparable, the children in the two groups should have similar retest scores. Statistical analysis indicated that there was no significant difference between the retest scores of the two groups ($t = 0.035$, n.s.); and there was no significant difference between the test and retest scores of the children in either group (A-B test sequence: $t = 0.105$, n.s.; B-A test sequence: $t = 0.010$, n.s.).

If the two forms of the Originality Test are comparable, changes in the test-retest scores of individual children in the two groups should be similar. For a majority of the children, test and retest scores were identical or differed by no more than three points; and for only eleven of the children were the score changes in excess of six points. A Chi-square analysis indicated that there was no significant difference in the changes in scores from test to retest for the two groups of children, those for whom the test sequence was A-B, and those for whom the sequence was B-A. (Chi-square = 3.46, df2, n.s.).

If the two forms of the Originality Test are comparable, the number of different responses given by the 76 children to the items in Form-A should be similar to the number given to the items in Form-B. An item analysis, based on the number of different responses given by each child, showed this to be true. The total number of different responses to the ten Form-A items was 1777, and to the ten Form-B items was 1783. The number of different responses given to the individual test items ranged from 166 to 189 for Form-A and from 164 to 192 for Form-B. A Mann-Whitney U test indicated that there was no significant difference between the number of responses to the individual Form-A items and the individual Form-B items. ($U = 40.5$; $z = 0.189$; n.s.).

Validity: The validity of the Starkweather Originality Test was demonstrated by comparing the test scores of 13 children with scores which indicated their freedom of expression, i.e., the freedom with which they expressed themselves in exploring and manipulating objects in their environment. Inasmuch as the Originality Test was designed to measure creative potential and was not presumed to measure specific aspects of creative ability, such as those identified in creative adults, the validation of the test was done in terms of a quality that is accepted as a pervasive characteristic of the creative person -- freedom of expression.

The experimental situation designed for the measurement of freedom of expression was one in which each child played by himself with a series of simple toys while being observed through a one-way mirror. The toys were ones which could be put to a number of uses and were toys with which the children had had little or no previous experience. Each child's freedom of expression was indicated by the variety of ways in which he played with the toys. His play behavior was scored in terms of the sensory experiences he used in exploring and manipulating the toys, the games he invented, the constructions he made, and the freedom with which he combined the toys in play.

Originality Test scores and freedom of expression are significantly related. A Spearman rank order correlation between the children's originality scores and their freedom scores yielded a coefficient of +0.687, $p < .02$. On the basis of this finding, the Starkweather Originality Test was accepted as a valid instrument.

Earlier in the development of the Originality Test, teachers' judgments of children's originality were used as a crude measure of concurrent validity. In a paired-comparison design, each child who scored high on the Originality Test was paired with each child who scored low, and the teachers were asked to indicate the child who was the more original in each pair. Teachers' judgments were in the direction of the originality scores in 106 pairs out of a total of 153. A Chi-square analysis indicated this extent of agreement to be statistically significant. (Chi-square = 22.752; $p < .001$).

Reliability: The internal consistency of the Originality Test was demonstrated by means of a split-half correlation (Spearman-Brown formula). The responses of 76 children, on Form-A and Form-B of the test, were used in this analysis. The correlation coefficient for Form-A was +0.860 and for Form-B was +0.806, both of which were significant beyond the .01 level.

Inter-judge reliability in scoring was demonstrated in a comparison of two sets of scores. (1) The responses of 144 children were scored jointly by two judges who participated in the development of the test; and (2) the same responses were scored by another person, trained in child development, but who had no experience with the test and who had no instructions other than the written directions for scoring. The coefficient of correlation (Pearson product-moment) between the two sets of judges' scores was +0.989, $p < .01$. In view of these findings, the directions for scoring were accepted as adequate. The use of these directions should assure reliable scoring.

Verbal Ability: The Originality Test requires verbal responses; nevertheless, the originality scores are independent of verbal ability. This has been demonstrated in two separate studies by a correlation of Peabody Picture Vocabulary scores (verbal ability) and Originality Test scores. In a study of 13 children, in which only Form-A of the Originality Test was administered, the product-moment correlation coefficient for these two sets of scores was +0.073, n.s. In another study of 18 children, in which both forms of the Originality Test were administered, the correlation coefficients were +0.192 for Form-A and +0.162 for Form-B, neither of which was statistically significant.

Starkweather Originality Test
Revised manuscript: November 1974

STARKWEATHER ORIGINALITY TEST

FOR YOUNG CHILDREN

DIRECTIONS FOR SCORING

In the Starkweather Originality Test, four opportunities are provided for the child to respond to each of ten different shapes, making a total of 40 responses. Each child's score is the actual number of different responses he gives during the test, with the maximum possible score being 40. Responses are scored in the order in which they appear on the score sheet, i.e., the four responses to the first shape, then the four responses to the second shape, etc.

Mark each response either plus (+) for credit, or minus (-) for no credit. Give credit for each response that is different from all previous responses on the score sheet. When in doubt, give the child credit.

Categories of Objects

1. Credit is given for the name of a category and for each different object in the category.
   a. Golf ball (+), Baseball (+), Moth ball (+), Golf ball (-).
   b. Ball (+), Rubber ball (+), Baseball (+), Ball (-).
   c. Play boat (+), Boat (+), Sail boat (+), Play boat (-).
   d. Nine (+), Six (+), A number (+), Six (-).

2. No credit is given for the name of an object that is altered by a minor adjective.
   a. Ball (+), Big ball (-), Half ball (-), Ball (-).
   b. Dress (+), Part of a dress (-), Part of a dress (-), Dress (-).
   c. Egg (+), Round egg (-), Little egg (-), Egg (-).
   d. Red ball (+), Green ball (-), Yellow ball (-), Blue ball (-).

Pet Names and Invented Words

1. Credit is given when a child responds with an invented word or pet name that has special meaning for him. For example, a child held Item-1, Form-A, and said, "This is a do-dad. My grandma says so. And yours is a do-dad too."

   Do-dad (+), Do-dad (-), Another do-dad (-), Another do-dad (-).

2. No credit is given for invented words that have no apparent meaning for the child. For example, no credit is given for a play on words such as the following:

   Kigless (-), Pigless (-), Sigless (-), Migless (-).

Objects in the Testing Room

Some children look about the room for ideas. This should be noted on the score sheet in order that anyone reviewing the scoring might be aware of what had happened. ONLY under these circumstances is a subjective judgment of the child's responses permitted in the scoring of the Originality Test.

1. Credit is given if there is a possible relationship between the child's response and the test item that he is holding. For example, one child looked about the room while holding the small ball (Item-9, Form-B). He looked directly at objects in the room as he gave his responses. Credit was given as follows:

   Door knob (+), Light bulb (+), Book (-), Light bulb (-).

2. No credit is given when there is no apparent relationship between the child's response and the test item that he is holding. For example, one child looked about the room and named whatever he saw without referring to the object in his hand. No credit was given for his responses.

   Curtains (-), Floor (-), Paper (-), Wall (-).

SAMPLE SCORE SHEETS, appended, serve to illustrate the scoring of the Originality Test.

STARKWEATHER ORIGINALITY TEST

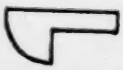
FORM - A — FOR PRESCHOOL CHILDREN — FORM - A

Name Lucy King Sex F Number 001

Date 7-17-74 Birthdate 4-29-69 Age 5:3

Testing Place Kiddie Klub

Score 26

1.		Table	+	Table	−	Party table	+	Pickup Truck	+
2.		"O"	+	"O"	−	Can end	+	Telescope	+
3.		Block	+	Box	+	Block	−	Box	−
4.		"E"	+	"9"	+	"6"	+	"9"	−
5.		Teeter-Totter	+	Play Boat	+	Car	+	Car	−
6.		Cave	+	Cave	−	Cave	−	Cave	−
7.		"L"	+	"R"	+	"L" made out of cotton	+	"R"	−
8.		Stick	+	Part of a Gate	+	Ironing board	+	Stick	−
9.		Part of a Rainbow	+	eye	+	Part of a dress	+	Boat	+
10.		"Can't think of anything"	−	"Can't think of anything"	−	Dress	−	Thing you see how much you weigh.	+

STARKWEATHER ORIGINALITY TEST

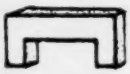
FORM - B FOR PRESCHOOL CHILDREN FORM - B

Name: Malcolm Leal Sex M Number 005

Date 7-28-74 Birthdate 8-29-69 Age 4:11

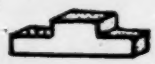
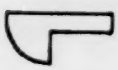
Testing Place Kiddie Klub

Score 29

1. 	"U" +	Door +	Bridge +	Part of an "A" +
2.	Raindrop +	Raindrop −	Raindrop −	Raindrop −
3.	Opening of a Cave +	Cave −	Bridge −	Coffee Table +
4.	Hair spray Top +	round thing you sit on +	Cookie +	Loose rock That's going To fall +
5.	Piece of Pizza +	Pizza −	Pizza −	Pizza −
6.	Rainbow +	Part of a round pillow +	Rocking Bed +	"C" +
7.	Bear face +	Buffalo face +	Pig Face +	Head with a bump on Top +
8.	Cut-out Picture +	Snowman +	Snowman −	Part of a man +
9.	Ball +	Balloon +	Sucker +	Ball −
10.	Ride at amusement park +	Record Player +	Cookie −	Half an Apple +

STARKWEATHER ORIGINALITY TEST
FOR YOUNG CHILDREN

Distribution of Colors in the Two Boxes

FORM - A	BOX-1	BOX-2	FORM - B
1. 	Red - Blue	Green - Yellow	1.
2.	Red - Yellow	Blue - Green	2.
3.	Green - Yellow	Red - Blue	3.
4.	Blue - Green	Red - Yellow	4.
5.	Red - Green	Blue - Yellow	5.
6.	Red - Yellow	Blue - Green	6.
7. 	Blue - Yellow	Red - Green	7.
8.	Blue - Green	Red - Yellow	8.
9.	Red - Blue	Green - Yellow	9.
10.	Green - Yellow	Red - Blue	10.